

**Amendment and Response Under 37 C.F.R. 1.116**

Applicant: Michael Goessel et al.

Serial No.: 10/577,288

Filed: April 24, 2006

Docket No.: I431.135.101/FIN516PCT/US

Title: EVALUATION CIRCUIT AND METHOD FOR DETECTING AND/OR LOCATING FAULTY DATA WORDS IN A DATA STREAM T<sub>N</sub>

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**REMARKS**

The following remarks are made in response to the Final Office Action mailed May 14, 2009. With this Response, claims 35 and 53 have been amended, and claims 30-34 and 59-60 have been cancelled. Claims 35-53 and 55-58 remain pending in the application and are presented for reconsideration and allowance.

**Claim Rejections under 35 U.S.C. § 112**

Claim 53 was rejected under 35 U.S.C. 112, second paragraph. Claim 53 has been amended to provide an antecedent for the term  $k$ , thus overcoming the rejection.

**Claim Rejections under 35 U.S.C. § 101**

Claims 59 and 60 were rejected under 35 U.S.C. 101 because the claimed invention allegedly is directed to non-statutory subject matter. In an effort to move the application to allowance, claims 59 and 60 have been deleted, rendering their rejections moot.

**Claim Rejections under 35 U.S.C. § 102**

Claim 30 was rejected under 35 U.S.C. 102(a) as allegedly being anticipated by Hasegawa et al. U.S. Publication 2004/0246337 (herein Hasegawa). Claim 30 has been cancelled.

**Claim Rejections under 35 U.S.C. § 103**

Claims 31, 32, 35-37, 39, 41-45, 48-52 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. U.S. Publication 2004/0246337 (herein Hasegawa), in view of Meaney, U.S. Patent 6,055,660 (herein Meaney).

Claims 31 and 32 have been cancelled.

Claim 35 has been amended to clarify that  $k > 1$ .

To establish *prima facie* obviousness, all claim limitations must be considered. MPEP 2143.03 (citing *In re Wilson*, 424 F.2d 1382, 1385, (CCPA 1970)). Claim 35 recites, “the first

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linear automaton circuit and the second linear automaton circuit are designed such that a first signature and a second signature, respectively, can be calculated of each data word.”

The Office Action cites paragraph [0066], page 5, lines 15-17 of Hasegawa regarding this claim element. However, Hasegawa does not teach that a second signature can be calculated of each data word. The scan chain compression unit 2 referred to in the cited passage of Hasegawa does not calculate a signature of the data word. The asserted data word is  $dpa$ ,  $dpb$ ,  $dpc$ , ...,  $dpn$ . Hasegawa teaches that “the scan chain compression unit serially outputs the compressed test results  $dpca$  to  $dpc$  in order.” This means that the scan chain compression unit first outputs  $dpca$  then it outputs  $dpcb$ , then  $dpcc$ , and so on until  $dpcn$ . This is done serially. The test result signature  $dpca$  is not a signature of the data word  $dpa$  to  $dpn$ , but a compression of the test result  $dpa$ , which means  $dpa$  (1),  $dpab$  (2),  $dpac$  ( 3 ), whereby 1, 2, 3 refers to clock cycles. This follows from Hasegawa's wording: “The test result  $Dpa$  is compressed as the compressed test results  $DCpa$ .”

This means that  $dpca$  is not a compression of the data word but the compression of a serial stream of one data. This is also true for the other compressed test result signatures  $dpcb$  to  $dpcn$ . Accordingly, the test chain compression unit 2 does not provide a signature of each data word.

MPEP 2143.01 notes that, if a proposed modification or combination of the prior art would change the principle of operation of the prior art disclosure being modified, then the teachings of the references are not sufficient to render the claims *prima facie obvious*. (Citing *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)).

Combining the disclosure of Hasegawa with Meaney as proposed in the Office Action would change the principle of operation of the Hasegawa reference, because the MISR B provides a compression of a data word. Implementing MISR B in the scan compression unit 2 of Hasegawa would lead to completely different circuit and a completely different function than Hasegawa provides.

Further, the MISR B cannot be described by the equation  $z(t+1) = Bz(t) \text{ XOR } y(t)$ , because the MISR B does not have the data word  $y(t)$  as input. The MISR A and MISR B are

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not connected in parallel. However, the MISR A is provided to compress the output of a first chip, the output being received via the bus A, whereas the MISR B is used to check the output data of a second chip, the output data being provided via the bus B.

Thus, Meaney discloses comparing outputs of two different chips – comparing two separate data words. This is different than examining a sequence of a single data word. There would be no reason for one skilled in the art to implement the MISR B instead of the scan chain compression unit 2, because they have completely different functions.

As such, claim 35, as well as claims 36, 37, 39, 41-45, 48-52 and 55 dependent thereon, are in condition for allowance.

Claims 33, 34, 38, 40, 46, 47 and 56-58 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa and Meaney, in view of additional references.

Claims 33 and 34 have been cancelled. The remaining claims all depend on claim 35 and are therefore allowable for at least the same reasons.

**Allowable Subject Matter**

The Office Action noted that claim 53 would be allowable is rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, set forth in the Office action. Claim 53 has been amended to provide an antecedent for the term k, thus overcoming the rejection under section 112.

As such, claim 53 is believed to be in condition for allowance.

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**CONCLUSION**

In view of the above, Applicant respectfully submits that all of the pending claims are in form for allowance. Therefore, reconsideration and withdrawal of the rejections and allowance of the claims are respectfully requested.

No fees are required under 37 C.F.R. 1.16(h)(i). However, if such fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 50-0471.

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Any inquiry regarding this Amendment and Response should be directed to Mark L. Gleason at Telephone No. (612) 767-2503, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

**Dicke, Billig & Czaja**  
Fifth Street Towers, Suite 2250  
100 South Fifth Street  
Minneapolis, MN 55402

Respectfully submitted,

Michael Goessel et al.,

By their attorneys,

**DICKE, BILLIG & CZAJA, PLLC**  
Fifth Street Towers, Suite 2250  
100 South Fifth Street  
Minneapolis, MN 55402  
Telephone: (612) 573-2000  
Facsimile: (612) 573-2005

Date: 05/28/2009  
MLG:cjs

/Mark L. Gleason/  
Mark L. Gleason  
Reg. No. 39,998